

Claims:

1. An orthodontic bracket comprising:

5 a base with an outer surface provided with light curable adhesive for bonding to a tooth surface,

a body extending from the base which contains a slot for an arch wire, and tie wing means for securing an arch wire into the slot, and

10 an integral light emitting element that, when electrically excited, emits radiation to cure the adhesive and effect bonding.

2. The bracket of claim 1 wherein the light emitting element consists of a light emitting diode, diode chips, semiconductor dies, semiconductors capable of radiative recombination of electron-hole pairs, or
15 electroluminescent elements, as individual elements or assembled into arrays or bundles.

3. A kit comprising the combination of an orthodontic bracket and a placement tool wherein the orthodontic
20 bracket comprises:

a base with an outer surface provided with light curable adhesive for bonding to a tooth surface,

a body extending from the base which contains a typical arch wire slot and tie wings, and

25 an integral light emitting element that, when electrically excited, emits radiation suitable for curing the adhesive; and wherein

the placement tool has a body including means to mechanically and electrically engage the bracket for the

purpose of placing the bracket on the tooth and electrically exciting the integral light emitting element.

5 4. The kit of claim 3 wherein the tool is provided with means to assist in locating the bracket on the tooth and provide an indication of the normal force applied to the bracket during bonding.

10 5. The kit of claim 3 where the tool has an adjustable angle to accommodate placement of brackets on back teeth.

6. The kit of claim 3 wherein the tool has a mirror or electronic video capability to assist with bracket placement.

15 7. A method of attaching an orthodontic bracket to a tooth comprising:

- a) providing an orthodontic bracket having an integral electrically generated light source;
- b) placing an amount of light curable adhesive on a rear bonding surface of the bracket;
- 20 c) placing the orthodontic bracket on a surface of the tooth using a tool; and
- d) electrically exciting the light source in the bracket to cure the adhesive and affix the bracket to the tooth.

25 8. The method of claim 7, wherein the light source is electrically excited by an electrical power source in the tool.

9. A tool for grasping, locating, and curing an adhesive-bearing orthodontic bracket, said tool providing electrical power to the bracket to illuminate an internal light source and effect curing of the adhesive to secure the bracket to a tooth.

10. An electrically powered and optically enhanced orthodontic bracket comprising:

- a) a body having a surface provided with optically curable adhesive thereon for securing the bracket to a tooth;
- b) an electrically operated light source within the body which when electrically energized emits radiation to cure the adhesive and effect bonding of the bracket to a tooth; and
- c) an optical path extending from the light source through the body for conducting light to the adhesive for curing the same to secure the bracket to a tooth.

11. The orthodontic bracket according to claim 9 wherein the body includes means for effecting electrical connection between the light source and an external electrical power source.

12. A method for securing an orthodontic bracket to a tooth comprising:

- a) providing an orthodontic bracket having light curable adhesive on a surface thereof, an integral electrically operated light source and a light conducting path from the light source through the bracket to said surface;

- b) positioning the bracket so that the adhesive contacts a surface of the teeth; and
 - c) energizing the light source to transmit light through the light conducting path in the bracket to cure the adhesive and secure the bracket to the tooth.
- 5

13. A method according to claim 11, wherein the light source is energized in response to generation of means external to the bracket.